

SEQUENCE LISTING

#19/C

<110> Immulologic Pharmaceutical Corp.

<120> T CELL EPITOPES OF RYEGRASS POLLEN ALLERGEN

<130> IMI-040CP3

<140> 08/737,904

<141> 1996-11-20

<150> 08/106,016

<151> 1993-08-13

<160> 60

<170> PatentIn Ver. 2.0

<210> 1

<211> 1229

<212> DNA

<213> Lolium perenne

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Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu Val Ala Gly Pro Ala 20
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acc gac gag cag aag ctg ctg gag gac gtc aac gct ggc ttc aag gca 246
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Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala Asp Lys Phe Lys Ile 85
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Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn
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Ala Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala
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Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys Gly
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Leu Leu Ala Thr Ser Ala Ala Lys Ala Pro Gly Leu Ile Pro Lys Leu
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Asp Thr Ala Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro
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Glu Ala Lys Tyr Asp Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg
130 135 140

Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu
145 150 155 160

Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp
165 170 175

Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala
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Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala
195 200 205

Leu Asn Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro
210 215 220

Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala
225 230 235 240

Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala

Ile Thr Ala Met Thr Gln Ala Gln Lys Ala Gly Lys Pro Ala Ala Ala
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Phe Lys Ile Ala
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Ala Pro Thr Asn
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Glu Ser Ala Phe
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Phe Ile Pro Ser
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Gln Ala Tyr Ala
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Pro Glu Val Lys
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Ala Leu Thr Lys
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Gln Ala Gln Lys
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Thr Gly Ala Ala
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Gly Lys Pro Thr
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Asp Gly Arg Gly Cys Gly
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Cys Thr Lys Pro
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Asp Ile Lys Glu
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Ile Glu Leu Lys
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Trp Arg Ile Asp

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Ser	Glu	Ala	Leu	Arg	Ile	Ile	Ala	Gly	Thr	Leu	Glu	Val	His	Ala	Val	
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Lys	Pro	Ala	Ala	Glu	Glu	Val	Lys	Pro	Ile	Pro	Ala	Gly	Glu	Leu	Gln	
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Ile	Val	Asp	Lys	Ile	Asp	Val	Ala	Phe	Arg	Thr	Ala	Ala	Thr	Ala	Ala	
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Asn	Ala	Ala	Pro	Thr	Asn	Asp	Lys	Phe	Thr	Val	Phe	Glu	Thr	Thr	Phe	
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aac	aag	gcc	atc	aag	gag	agc	acg	ggc	ggc	acc	tac	gag	agc	tac	aag	730
Asn	Lys	Ala	Ile	Lys	Glu	Ser	Thr	Gly	Gly	Thr	Tyr	Glu	Ser	Tyr	Lys	
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Val	Ala	Ser	Ala	Pro	Glu	Val	Lys	Tyr	Ala	Val	Phe	Glu	Thr	Ala	Leu	
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Lys	Lys	Ala	Val	Thr	Ala	Met	Ser	Glu	Ala	Gln	Lys	Glu	Ala	Lys	Pro	
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gcc	acc	gcc	acc	ccg	acc	ccc	acc	gca	act	gcc	gcg	gcc	gcg	gtg	gcc	922
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Ala Ala Pro Gly Ala Ala Val Pro Ala Gly Lys Ala Ala Thr Glu Glu
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Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Val Ala
 35 40 45

Ala Ala Ala Gly Val Pro Pro Gly Asp Lys Tyr Lys Thr Phe Val Glu
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Thr Phe Gly Lys Ala Ser Asn Lys Ala Phe Leu Gly Asp Leu Pro Thr
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Asn Tyr Ala Asp Val Asn Ser Arg Ala Gln Leu Thr Ser Lys Leu Asp
 85 90 95

Ala Ala Tyr Lys Leu Ala Tyr Asp Ala Ala Gln Gly Ala Thr Pro Glu
 100 105 110

Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile
 115 120 125

Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu
 130 135 140

Val Lys Pro Ile Pro Ala Gly Glu Leu Gln Ile Val Asp Lys Ile Asp
 145 150 155 160

Val Ala Phe Arg Thr Ala Ala Thr Ala Ala Asn Ala Ala Pro Thr Asn
 165 170 175

Asp Lys Phe Thr Val Phe Glu Thr Thr Phe Asn Lys Ala Ile Lys Glu
180 185 190

Ser Thr Gly Gly Thr Tyr Glu Ser Tyr Lys Phe Ile Pro Thr Leu Glu
195 200 205

Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ser Ala Pro Glu
210 215 220

Val Lys Tyr Ala Val Phe Glu Thr Ala Leu Lys Lys Ala Val Thr Ala
225 230 235 240

Met Ser Glu Ala Gln Lys Glu Ala Lys Pro Ala Thr Ala Thr Pro Thr
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Pro Thr Ala Thr Ala Ala Ala Ala Val Ala Thr Asn Ala Ala Pro Val
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Ala Ala Gly Gly Tyr Lys Ile
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<400> 61

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Cys Arg Ala Arg Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro Ala
 -5 -1 1 5

Thr Pro Ala Thr Pro Ala Thr Pro Ala Ala Pro Gly Ala Ala Val Pro
 10 15 20

Ala Gly Lys Ala Ala Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn
 25 30 35 40

Ala Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Gly Val Pro Pro Gly
 45 50 55

Asp Lys Tyr Lys Thr Phe Val Glu Thr Phe Gly Lys Ala Ser Asn Lys
 60 65 70

Ala Phe Leu Gly Asp Leu Pro Thr Asn Tyr Ala Asp Val Asn Ser Arg
 75 80 85

Ala Gln Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Asp
 90 95 100

Ala Ala Gln Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala
 105 110 115 120

Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His
 125 130 135

Ala Val Lys Pro Ala Ala Glu Glu Val Lys Pro Ile Pro Ala Gly Glu
 140 145 150

Leu Gln Ile Val Asp Lys Ile Asp Val Ala Phe Arg Thr Ala Ala Thr
 155 160 165

Ala Ala Asn Ala Ala Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Thr
 170 175 180

Thr Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly Gly Thr Tyr Glu Ser
 185 190 195 200

Tyr Lys Phe Ile Pro Thr Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala
 205 210 215

Ala Thr Val Ala Ser Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Thr
 220 225 230

Ala Leu Lys Lys Ala Val Thr Ala Met Ser Glu Ala Gln Lys Glu Ala
 235 240 245

Lys Pro Ala Thr Ala Thr Pro Thr Pro Thr Ala Thr Ala Ala Ala Ala
 250 255 260

Val Ala Thr Asn Ala Ala Pro Val Ala Ala Gly Gly Tyr Lys Ile
 265 270 275